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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,666	02/11/2002	Paul C. Huang	1657.55US01	4597

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EXAMINER

SOTOMAYOR, JOHN

ART UNIT	PAPER NUMBER
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3714

DATE MAILED: 06/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/073,666

Applicant(s)

HUANG ET AL.

Examiner

John L Sotomayor

Art Unit

3714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 5/31/03
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-13, 15-20 and 22-26 is/are rejected.
- 7) ☒ Claim(s) 6, 14 and 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The statement "wherein an outline of a change" renders confusion about the claim as it is unclear what sort of change in visual data is the object of the outline, thus rendering the claim indefinite.

3. Claim 12 recites the limitation "wherein the buoy subsystem" in line 3 of the claim. There is insufficient antecedent basis for this limitation in the claim.

4. Claims 23 and 24 recite the limitation "the method" in the preamble of the claims. There is insufficient antecedent basis for this limitation in the claim. Claims 23 and 24 improperly depend from a non-method claim, causing confusion about the claims and rendering them indefinite. For purposes of examination, the Examiner assumes that the claims depend from claim 22.

5. Claim 26 recites the limitation of "system" in the preamble of the claim. There is insufficient antecedent basis for this limitation in the claim. Claim 26 improperly depends from a method claim, causing confusion about the claim and rendering it indefinite. For purposes of examination, the Examiner assumes that the claim depends from claim 25.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1,2,8,9,22,25 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Pollak et al (US 6,106,297).

8. Regarding claims 1 and 22, Pollak et al discloses a virtual target range system and method comprising a plurality of weapon systems under computer control (Col 3, lines 1-8), means for implementing a three-dimensional graphical view of a target range (Col 2, lines 48-59 and Col 3, lines 42-58), means for calculating results from a weapon system fire exercise (Col 3, lines 25-32), and a spotter subsystem display for viewing three-dimensional graphic results of the fire exercise generated by the computer system (Col 3, lines 42-65).

9. Regarding claim 2, Pollak et al discloses a Viewer which populates terrain characteristics from a plurality of databases which contain geographic and target item information (Col 2, lines 50-60 and Col 3, lines 1-8).

10. Regarding claim 8, Pollak et al discloses a virtual target system in which data is collected during an exercise that allows the calculation of fire events, collisions, impact points, and damage received (Col 3, lines 24-32).

11. Regarding claim 9, Pollak et al discloses a Viewer which populates terrain characteristics from a plurality of databases which contain geographic and target item information (Col 2, lines

Art Unit: 3714

50-60 and Col 3, lines 1-8), means for implementing a three-dimensional graphic view from the plurality of databases (Col 3, lines 24-25) and means for calculating results of the fire exercise from data collected by the system (Col 3, lines 26-32).

12. Regarding claim 25, Pollak et al discloses a virtual target range system with means for implementing a virtual target range for use in conjunction with a plurality of weapons systems fire exercises (Col 2, lines 21-34, means for calculating results of the weapon system fire exercises (Col 3, lines 25-32) and means for a spotter to view three-dimensional results of the weapon system fire exercises (Col 3, lines 43-58).

13. Regarding claim 26, Pollak et al discloses means for collecting data about a live weapon system fire exercise (Col 3, lines 5-12).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

16. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

17. Claims 3,4,12 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pollak et al in view of Blume (US H1618).

18. Regarding claim 3, Pollak et al discloses a target range system with the capability to attach a plurality of weapons and targeting subsystems (Col 2, lines 21-35). Pollak et al does not specifically disclose that one of the subsystems is a buoy subsystem including at least three sensors. However, Blume teaches a plurality of sea buoys may be interconnected through a GPS system to form a sonobuoy field that transmits position of all of the buoys to a receiving vehicle (Col 1, lines 45-62). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to provide a target range system with the capability to attach a plurality of weapons and targeting subsystems including a field of sonobuoys that transmits position of all of the buoys to a receiving vehicle to form a sea going target field for the purpose of providing target and results information for all weapons landing among the sonobuoys.

19. Regarding claims 4 and 12, Pollak et al discloses a target range system with the capability to attach a plurality of weapons and targeting subsystems (Col 2, lines 21-35). Pollak et al does not specifically disclose that one of the subsystems is a buoy subsystem including at least three

Art Unit: 3714

sensors. However, Blume teaches a plurality of sonobuoys may include radar and acoustic sensors and record the time when a sensor perceives an impact sound and the location of the sensor (Col 2, lines 22-40 and Col 4, lines 1-14). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to provide a target range system with the capability to attach a plurality of weapons and targeting subsystems including a field of sonobuoys to include radar and acoustic sensors and record the time when a sensor perceives an impact sound and the location of the sensor. Combining the system described by Pollak et al with the subsystem taught by Blume produces a naval targeting system that feeds precise target result information to the simulation manager for display to exercise operations specialists.

20. Regarding claim 15, Pollak et al discloses a virtual target range system and method comprising a plurality of weapon systems under computer control (Col 3, lines 1-8), means for implementing a three-dimensional graphical view of a target range (Col 2, lines 48-59 and Col 3, lines 42-58), means for calculating results from a weapon system fire exercise (Col 3, lines 25-32), and a spotter subsystem display for viewing three-dimensional graphic results of the fire exercise generated by the computer system (Col 3, lines 42-65). Pollak et al does not specifically disclose that one of the subsystems is a buoy subsystem including at least three sensors.

However, Blume teaches a plurality of sonobuoys may include radar and acoustic sensors and record the time when a sensor perceives an impact sound and the location of the sensor (Col 2, lines 22-40 and Col 4, lines 1-14). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to provide a virtual target range system and method comprising a plurality of weapon systems under computer control, means for implementing a three-dimensional graphical view of a target range, means for calculating results from a weapon

Art Unit: 3714

system fire exercise, a spotter subsystem display for viewing three-dimensional graphic results of the fire exercise generated by the computer system, and the capability to attach a plurality of weapons and targeting subsystems including a field of sonobuoys to include radar and acoustic sensors and record the time when a sensor perceives an impact sound and the location of the sensor. Combining the system disclosed by Pollak et al with the teaching of Tye produces a system that uses sea based sensors to provide fire exercise results information for real-time and future analysis.

21. Claims 5,10,13,16,18-20 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pollak et al in view of Tye (US 4,308,015).

22. Regarding claims 5 and 13, Pollak et al discloses a target range system with the capability to attach a plurality of weapons and targeting subsystems used in fire exercises to determine impact points for weapon system fire exercises (Col 2, lines 21-35 and Col 3, lines 42-58).

Pollak et al does not specifically disclose that one of the subsystems is an aerial subsystem having a combination of a camera system and radar. However, Tye teaches an aerial warfare system in which the air vehicles are outfitted with camera and radar systems (Col 3, lines 28-30 and Col 4, line 13) to provide data to the target range system (Col 3, lines 57-66). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to provide a target range system with the capability to attach a plurality of weapons and targeting subsystems used in fire exercises to determine impact points for weapon system fire exercises in which air vehicles are outfitted with camera and radar systems to provide data to the target range system. Combining the system taught by Pollak et al with the teaching of Tye produces a system in

Art Unit: 3714

which aerial observations of live fire exercises may be transmitted to the target range system in real time and recorded for later analysis.

23. Regarding claim 10, Pollak et al discloses a virtual target range system comprising a spotter subsystem display for viewing three-dimensional graphic results of the fire exercise generated by the computer system (Col 3, lines 42-65).

24. Regarding claim 16, Pollak et al discloses a Viewer which populates terrain characteristics from a plurality of databases which contain geographic and target item information (Col 2, lines 50-60 and Col 3, lines 1-8).

25. Regarding claim 18, Pollak et al discloses a target range system with the capability to attach a plurality of weapons and targeting subsystems used in fire exercises to determine impact points for weapon system fire exercises (Col 2, lines 21-35 and Col 3, lines 42-58). Pollak et al does not specifically disclose that one of the subsystems is an aerial subsystem having a combination of a camera system and radar and that impact points are determined relative to the aerial vehicle. However, Tye teaches an aerial warfare system in which the air vehicles are outfitted with camera and radar systems (Col 3, lines 28-30 and Col 4, line 13) to provide data to the target range system (Col 3, lines 57-66) and that target points are determined relative to an aerial vehicle (Col 3, lines 45-66). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to provide a target range system with the capability to attach a plurality of weapons and targeting subsystems used in fire exercises to determine impact points for weapon system fire exercises in which air vehicles are outfitted with camera and radar systems to provide data to the target range system showing impact points determined relative to the aerial vehicle. Combining the system taught by Pollak et al with the teaching of Tye

Art Unit: 3714

produces a system in which aerial observations of live fire exercises may be transmitted to the target range system in real time and recorded for later analysis to enable a more accurate and useful evaluation of a pilot's performance than prior systems allowed.

26. Regarding claim 19, Pollak et al discloses a Viewer which populates terrain characteristics from a plurality of databases which contain geographic and target item information (Col 2, lines 50-60 and Col 3, lines 1-8).

27. Regarding claim 20, Pollak et al discloses a virtual target range system and method comprising a spotter subsystem display for viewing three-dimensional graphic results of the fire exercise generated by the computer system (Col 3, lines 42-65).

28. Regarding claim 24, Pollak et al discloses a virtual target range system and method comprising a means for calculating results from a weapon system fire exercise (Col 3, lines 25-32).

29. Claims 11, 17 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pollak et al in view of Blume in further view of Tye.

30. Regarding claims 11 and 17, Pollak et al discloses a target range system with the capability to attach a plurality of weapons and targeting subsystems (Col 2, lines 21-35). Pollak et al does not specifically disclose that one of the subsystems is a buoy subsystem including at least three sensors. However, Blume teaches a plurality of sea buoys may be interconnected through a GPS system to form a sonobuoy field that transmits position of all of the buoys to a receiving vehicle (Col 1, lines 45-62). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to provide a target range system with the capability to attach a plurality of weapons and targeting subsystems including a field of sonobuoys that

Art Unit: 3714

transmits position of all of the buoys to a receiving vehicle to form a sea going target field for the purpose of providing target and results information for all weapons landing among the sonobuoys.

31. Regarding claim 23, Pollak et al discloses a target range system with the capability to attach a plurality of weapons and targeting subsystems (Col 2, lines 21-35) and a virtual target system in which data is collected during an exercise that allows the calculation of fire events, collisions, impact points, and damage received (Col 3, lines 24-32).. Pollak et al does not specifically disclose that one of the subsystems is a buoy subsystem including at least three sensors. However, Blume teaches a plurality of sea buoys may be interconnected through a GPS system to form a sonobuoy field that transmits position of all of the buoys to a receiving vehicle (Col 1, lines 45-62). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to provide a target range system with the capability to attach a plurality of weapons and targeting subsystems including a field of sonobuoys that transmits position of all of the buoys to a receiving vehicle including data collected during an exercise that allows the calculation of fire events, collisions, impact points from a sea going target field for the purpose of providing target and results information for all weapons landing among the sonobuoys.

Allowable Subject Matter

Claims 6, 14 and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 3714

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Tran (US 5,892,462) for a discussion of adaptive targeting.

Danckwerth et al (US 6,283,756) for a discussion of a fire exercise control system with GPS connectivity.

Pfeiffer et al (US 5,960,097) for a discussion of a military exercise control system with adaptive target detection and tracking.

Shiomi et al (US 5,677,841) for a discussion of aerial platform target surveillance control systems.

Lynde (US 5,786,849) for a discussion of naval target definition and tracking.

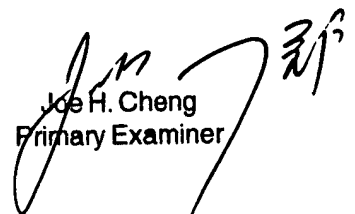
Any inquiry concerning this communication or earlier communications from the examiner should be directed to John L Sotomayor whose telephone number is 703-305-4558.

The examiner can normally be reached on 6:30-4:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Hughes can be reached on 703-308-1806. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-8361 for regular communications and 703-746-8361 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4558.

jls
June 6, 2003


Joe H. Cheng
Primary Examiner